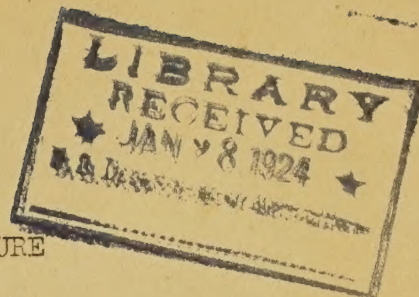


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UNITED STATES DEPARTMENT OF AGRICULTURE

SUMMARY OF EXHIBIT

DEVELOPMENT OF DAIRYING

This exhibit consists of three scenes depicting conditions on a dairy farm in three stages of its development,- primitive, later, and advanced. Conditions are realistically reproduced in large miniature scale by objects and representations of objects in the foreground, with the scenes carried into the distance by large paintings.

Each of the three scenes is about 33 feet long, the whole occupying a space 100 feet long, 10 feet, deep, and 10 feet high.

UNITED STATES DEPARTMENT OF AGRICULTURE

DESCRIPTION OF THE SCENES "DEVELOPMENT OF DAIRYING."

Note.-- Many factors contribute to the development of the dairy industry. How many of these factors, as described in the following pages, can you find in the scenes?

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Wonderful industrial and agricultural progress has been made in the United States since the nation was established. The dairy industry has kept pace with others in this respect, as a comparison of the past with the present will reveal. In the United States today there are 30,000,000 dairy cattle, on 4,500,000 farms. The annual farm value of dairy products has increased to over \$2,000,000,000, and the industry has extended to the remotest parts of our country.

In this 100-foot panorama a few of the achievements in dairying are shown. The progress made in dairying is closely linked with the advance of science, and the parallel growth is depicted in the small connecting sections. Each of the three large sections represents one stage of development.

The Primitive Stage.

The first shows an American dairy farm in its early and primitive stage of development. Unfortunately, there are many farms like this even today. Such farms are under a great handicap in competing with farms that use modern methods.

The cows here are just cows -- not bred for the particular purpose of producing large quantities of milk economically. Even as late as 1890 only one per cent of the dairy cows in this country were purebred dairy cows. The bull is a scrub.

The barn is cold, dark, damp, and dirty, depending for light and ventilation on open doors and cracks. The result of such a barn is unhealthy cows, low-grade milk, and too much work for the results obtained. Such barns and buildings furnish ideal hiding places for rats and other pests which pollute and destroy grain for livestock, and at the same time spread filth and disease. Bovine tuberculosis may easily get a foothold here, and do much harm before it is noticed. Before the discovery of the tuberculin test in the early 90's there was no reliable test for this disease.

The house on this farm is not a home, but merely a place in which to sleep and eat. It is lacking in convenience, comfort, and beauty --- three essentials of a home. Houses like this cause drudgery for the whole family, especially the women, and offer little inducement for young folks to stay on the farm.

An abundant supply of pure water is a necessity on the dairy farm. Pure water can not be expected from a well into which impurities may drain from barn and manure pile. The manure has been allowed to accumulate around the barn. During the summer it breeds flies.

The farm woods are heavily pastured. The result is poor pasture and poor woods. Soil erosion has followed the clearing of the steep hillside. The pasture on this farm contains weeds and shrubby growth which have developed to the detriment of the grass. Blue-grass pasture should be closely grazed.

The feeding of farm animals on this primitive farm is conducted largely according to individual ideas of the owner, or by guesswork. The economy of growing the best feeds to supplement pasture and hay was unknown to the pioneer dairyman.

No accurate record is kept of the production of the different cows. In fact, before the invention of the Babcock test in 1893, dairymen had no way to determine accurately the production of butterfat.

The open-top pails used for milking catch dust and dirt. Rusty battered cans and utensils are insanitary. These factors and lack of cooling result in low-quality milk. This was not so apparent in those old days, when the milk was used at home and without much delay, as it is now when the milk has to be held and shipped.

The shallow-pan method of creaming is laborious, inefficient, and insanitary. The deep-setting method, which was a later development (1875), is an improvement but still is inefficient. Milk from this farm, if sold for direct consumption, is carried in cans and dipped from the can. This system is insanitary.

The primitive dairyman keeps cows chiefly for family milk and butter supply. The surplus receives little attention, and little thought is given to marketing. Farm-made butter is the principal dairy product marketed. (the first creamery was established in 1861.) Some cheese is made on this farm, for up to 1850 very little cheese was made in the factories. The price the dairyman receives for his products is governed by local demand.

The Later Stage.

The second scene portrays an American dairy farm in a later stage of development, showing much improvement over the first, but still far from the best. Undoubtedly, the largest number of American dairy farms of the present day approach most closely this second stage of development.

Here we find improvement in the cattle. The cows show evidence of dairy breeding. This has improved the type and increased the milk production. Through membership in a cow-testing association this dairyman is finding out which cows are profit makers. Unprofitable cows are being discarded.

and the good ones bred to good bulls. This is good business. The cow-testing association has shown this dairyman what to feed and how much to feed each cow. This also is good business. The silo was built to give the cows succulent forage during seasons when green crops are not available.

A good purebred bull is now being used. The use of such bulls over a long period of years was obtained by this dairyman at small cost, by joining a cooperative bull association. Even at the present time only 25 per cent of the dairy bulls used in this country are purebreds.

The cows are tuberculin-tested. Excellent results obtained with accredited herds influenced this dairyman to try to eradicate tuberculosis from his herd. The barn has been improved, but it is far from ideal. It needs more windows and better ventilation to assure sunlight, and pure air. The manure is not allowed to accumulate around this barn. Hauling it out destroys the breeding place of flies, and gets the fertility to the fields without excessive loss through leaching.

The old well in the hollow has been abandoned, and a supply of purer water is now obtained from a well on higher ground some distance from the barn. An elevated tank provides running water for both house and barn. The addition to the house has made it more commodious and homelike, though it lacks conveniences which it ought to have to make housekeeping pleasant.

Close grazing has kept down the weeds in the blue-grass pasture. Pasture is an important crop. It furnishes one-third of the feed for farm animals. The farm wood lot shows improvement, for cattle have been restricted to one or two acres. The wood lot now produces all the posts, fuel, and timber for the farm.

A centrifugal separator has been installed to save butterfat and get the job done quickly. The introduction of the cream separator in 1879 contributed materially to the development of dairying in districts far distant from market. A demand for a better quality of products has made cooling of milk and more sanitary utensils necessary. The products sold now are largely milk and cream, butter and cheese being made in the factories, as are condensed milk, ice cream, and other products. The farm churn has given way to the modern creamery plant because the latter turns out a uniform product in large quantity.

The Advanced Stage.

The last scene depicts what may be regarded as the latest development of the industry, even looking into the future.

The farm is neither large nor fancy, but has been developed into an efficient organization for producing high-grade milk economically. The bull is a proved sire. The production records of his daughters show that he will transmit the factors that control high production. This makes a high-producing herd almost certain. The herd consists of high-producing purebred dairy cows, only a few of which are shown in the scene. The herd is free from tuberculosis, a condition brought about through sanitation and systematic tuberculin-testing.

This dairyman is feeding his cows skillfully and economically. A knowledge of feed values is reducing his work to a science and accurate production records show that each cow is a profit maker. A silo helps to solve the forage problem.

Leguminous forage crops have an important place here. Alfalfa and clover furnish the hay, and soy beans mixed with corn are used for silage. Soil productiveness is maintained by underdrainage, arrested erosion, deep tillage, stable and green manures, and selected fertilizers.

The barn is comfortable, well lighted, well ventilated, and arranged to save time and labor. All the buildings are rat-proof. This eliminates these carriers of filth and dirt.

The house is durable and beautiful. The interior is carefully planned for convenience, healthfulness, and beauty and it is fitted with modern labor-saving equipment. Lightning rods protect the house, barn, and other buildings. A supply of pure water is piped to the house, barn, milk house, and other places.

A sanitary screened milk house with cement floor, steam boiler, running water--- and detached from the barn --- furnishes a place to handle the milk properly. Mechanical devices are used to cut down hand labor. The cleaner conditions in the dairy are partly the result of information concerning bacteria. Seventy years ago Pasteur observed the relation between bacteria and the souring of milk.

Cooperative marketing organizations have aided the dairyman to employ skillful manufacturers and salesmen to place his product on the market. Dairy-men are active in cooperative organizations. Twenty per cent of the dairy marketing associations have been in existence 25 years or more. The dairyman takes advantage of the market news service furnished by the U. S. Department of Agriculture through the mail, telegraph, and radio.

Each of these scenes shows the best methods generally known at the time which the scene represents. It has been mainly through the application of science that each succeeding stage has made improvement over the one before it. Little did our forefathers dream that dairying would develop to the point to which it has. Likewise we in this generation can not know what the future has in store for the industry. However, with more careful application of the fundamental sciences to dairying we may expect quite as much progress in the next few generations as has been achieved in a similar period of the past.

